

Application No. 10/642,410

**REMARKS**

Claims 1 and its dependent claims 3-5 have been rejected under 35 USC 103 over Reeder in view of Hamilton. In the above Amendment, claim 1 has been amended to include the limitation of originally filed claim 2. Claim 2 has been rejected under 35 USC 103 over Reeder in view of Hamilton and further in view of Wakabayashi. Reeder is cited for showing the use of a slip clutch in conjunction with a roller in an apparatus for folding sheets. Reeder does not show creasing rollers, but creasing rollers are shown in Hamilton. Wakabayashi shows the use of a blade to push a plurality of sheets through crease rolls.

Claim 1, from which all of the claims in this rejection are dependent, recites a slip element operatively disposed between the second drive member and the second axle, in the context of a folding apparatus having a blade for pushing a plurality of sheets into a folding nip. As explained at length in the Specification as filed starting at page 4, line 29, the slip clutch addresses a practical problem caused by the sudden changes in frictional coefficients among the sheet surfaces as the sheets pass through the nip: if a plurality of sheets are pushed through the nip at once, the sheets (such as the cover of a magazine and the adjacent set of pages) are liable to slide *against each other* during the folding step, resulting in a crumpled booklet. The presence of the recited slip element, as explained in the Specification, overcomes this problem.

The folding apparatus in the primary reference, Reeder, operates as follows. As described at column 3, lines 29-40, and shown in Figure 2, rollers 38 and 40 drive a *single*, long sheet against a passageway formed by slanted portions 52, 53; this action results in folds such as 14a in the sheet, which enables the single sheet to stack in an accordion fashion such as at 63. Significantly, the rollers 38, 40 **do not function as crease rolls**, in the manner of the claimed invention; and there is **no suggestion** that a **plurality of sheets** would ever be driven by rollers 38, 40. Indeed, the specific cited passage is emphatic that the slip element discussed therein applies specifically to the problem of folding a single, continuous sheet:

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By adjusting the nut 80 to exert varying forces upon the friction pads 74, the clutch can be adjusted to slip over a range of different torques. Thus, with this clutch arrangement the degree of slippage between the roller 38 and the **continuous document 13** [clearly a *single sheet* in Figure 2] may be controlled to prevent displacement of the document 13 and also to control the **tension placed on the [single sheet] continuous document 13** as a function of document 13 itself by the rollers 28, 30, 38 and 40 as it passes over the hump 38. (emphasis, notation added)

Thus, a person of ordinary skill in the art reading this passage would see no suggestion that the use of a slip element or clutch would be useful in the problem of folding *multiple sheets*, such as in a booklet, where there is a danger of sheets slipping *against each other*. All that is taught in Reeder is that the **tension** caused by a roller against a *single sheet* is of interest.

The secondary reference, Hamilton, is directed to a "buckle-chute paper folding apparatus." The overall operation of Hamilton can be followed in Figure 5-8 of Hamilton: a single sheet to be folded is drawn between rollers 54, 56 and then sharply creased by rollers 58, 60, which are driven by gears 76, 78 (column 4, lines 23-25). Nowhere in Hamilton is there any disclosure or suggestion that the gears 76, 78 are sensitive to any changes in frictional coefficient between rollers 58, 60. A person of skill in the art would not see therein a teaching that limiting the torques between rollers 38, 60 is for any reason desirable.

The third reference, Wakabayashi, discloses the use of a blade to insert a plurality of sheets between pairs of entrained roller, thereby folding the plurality of sheets. However, there is no teaching in Wakabayashi, *nor is there maintained to be such teaching in the rejection*, that there should be a slip element, or any kind of torque limiting, associated with the apparatus or the action of folding.

The cited references cannot be combined to show claim 1 as obvious because there is no suggestion to combine their respective teachings:

Reeder recites the use of a slip element, but specifically in the context of making folds in a single, continuous sheet. There is no suggestion that a slip

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element would be useful with **crease rolls**, nor that a slip element is useful for folding a **plurality of sheets**.

**Hamilton** has no teaching that a clutch or other torque limiting would be useful in a crease-roll context.

**Wakabayashi** has no teaching that a clutch or other torque limiting would be useful in a crease-roll context.

In summary, there is **no** suggestion in the prior art that a slip element or torque limiting is at all useful when folding a plurality of sheets with crease rolls and a blade. For this reason, the references cannot be combined.

Claims 6-11 are rejected under 35 USC 102(b), or, in the alternative, under 35 USC 103 in view of Reeder, which was discussed above. Claim 6, from which the other claims are dependent, is similar to claim 1, discussed above, except that claim 6 is a method claim in which torque is limited, as opposed to the presence of a "slip element" as in claim 1. Nonetheless, claim 6 recites folding a *plurality of sheets* through a nip formed by *crease rolls*, which is not disclosed in Reeder, and therefore claim 6 is patentable over Reeder for the same reasons given with regard to claim 1 above. Claims 7-11 are deemed patentable as being dependent from claim 6.

Claim 12 is rejected under 35 USC 103 over Reeder in view of Wakabayashi. Wakabayashi is cited to show the use of a blade. Claim 12 is a method claim reciting similar elements ("torque limiting" instead of a "slip element") as claim 1 above, and is patentable over the references for the same reasons given above with regard to claim 1.

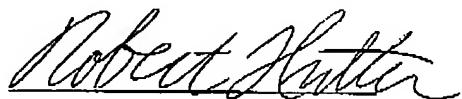
The claims are therefore in condition for allowance.

No additional fee is believed to be required for this amendment; however, the undersigned Xerox Corporation attorney authorizes the charging of any necessary fees, other than the issue fee, to Xerox Corporation Deposit Account No. 24-0025.

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In the event the Examiner considers personal contact advantageous to the disposition of this case, he is hereby requested to call the undersigned attorney at (585) 423-3811, Rochester, NY.

Respectfully submitted,



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